

Serial No.: 09/993,320

Filing Date: November 19, 2001

Attorney Docket No. 100.290US01

Title: RESILIENT BOOT PROM LOADER

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**Amendments to the Specification:**

Please amend the **Brief Description of the Drawings** as follows:

Page 6, paragraph 24, after, "Figures 2A and 2B are simplified diagrams of embodiments of the present invention.", please insert the following paragraph: --Figure 3 is a flow chart that illustrates one embodiment of a method of improved operation and configuration of a communication device with a boot PROM selecting and loading from a management device.--

Please amend the **Detailed Description** as follows:

In response to the Examiner's objection for failure to show every feature of the invention specified in the claims, Applicant amends the specification as follows to tie proposed new Figure 3 to the specification.

Page 7, Paragraph 0028, replace with the following new paragraph:

[0028] The communication device software routines that initiate communication with the management device and download the required firmware for the device are collectively referred to as a "boot PROM" after the programmable read only memory (PROM) machine usable non-volatile storage device that such routines have historically been stored in (302, Figure 3). It is noted that such boot PROM routines can be stored on a variety of machine usable storage mediums that include, but are not limited to, a non-volatile Flash memory, a read only memory (ROM), a electrically erasable programmable read only memory (EEPROM), a one time programmable (OTP) device, a complex programmable logic device (CPLD), an application specific integrated circuit (ASIC), a magnetic media disk, etc.

Page 8, Paragraph 0030, replace with the following new paragraph:

[0030] Boot PROM technology has been known in the past as an enabling technology for "diskless" workstations and access terminals or workstations that are integrated into a highly centralized network control and security environment. For communication devices, however,

boot PROM utilization has several distinct advantages. The boot PROM code generally is small in relative size to the firmware and generally does not change much over the expected device life allowing for smaller non-volatile storage needs on the communication device and fewer updates. All the boot PROM generally must do is initialize the system, communicate with the management device, and enable loading of device firmware into the communication device main memory. The software routines stored in the boot PROM generally consist of initialization routines for the communication device, basic communication protocol routines to allow communication with a management device, routines that identify the device and any required configuration information (304, Figure 3), routines that allow for the download of firmware, and routines that allow the loading of the firmware into device memory and transfer of control to the loaded firmware routines, and the like. It is noted that the boot PROM may also include routines and/or information that is reusable by the firmware routines downloaded to communication device.

Page 9, Paragraph 0032, replace with the following new paragraph:

[0032] When the communication devices communicate to a management device a device ID (306, Figure 3) that uniquely identifies the appropriate firmware is sent and the firmware is selected by the management device for downloading into the device without time consuming and error prone matching of the appropriate firmware to the communications device by an administrator. If the communications device has a conventional internal firmware storage medium attached to it, such as a Flash memory, the boot PROM utilized to automatically keep the firmware on the storage media up to date by simply programming it with the downloaded firmware. This utilization of internal firmware storage media on the configuration device speeds initialization and configuration of the communication device in certain cases. In these situations the version of the firmware stored on the communication device is communicated to the management device. The management device then skips the download of the selected firmware, if it is of the same version as the firmware that is programmed on the communication device and instructs the communication device to use its locally saved firmware. Alternatively, a completely different firmware is selected by the management device (308, Figure 3) for the

**AMENDMENT AND RESPONSE**

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communication device to download (310, Figure 3) and run (312, Figure 3), but not to save, into a local storage media. One such case of this is the utilization of a diagnostic software routine or a special purpose firmware.